Remarks

Status of Claims and Support for Claim Changes Pursuant to 37 CFR 1.173(c)

1. Cancelled
2. Cancelled
3. Cancelled
4. Cancelled
5. Cancelled
6. Cancelled
7. Cancelled
8. Cancelled
9. Cancelled
10. Cancelled
11. Cancelled
12. Cancelled
13. Cancelled
14. Cancelled
15. Cancelled
16. Cancelled
17. Cancelled
18. Cancelled
19. Cancelled
20. Cancelled
21. Amended; See Figs. 1,2, 8, 9, 10, 11, and Col: 4:16-29; for example

22. Amended; See Figs. 1,2, 8, 9, 10, 11, and Col: 4:16-29; for example

23. Amended; See Figs. 2-8, for example

24. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic.

25. Amended; See Figs. 1,2, 8, 9, 10, 11, and Col: 4:16-29; for example

26. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic.

27. Amended: see Figs. 1, 11.

28. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example;

29. Amended;

30. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

31. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

32. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example;

33. Amended; See Fig. 1 and Col: 4:16-29; for example

34. Cancelled

35. Cancelled

36. Cancelled

37. Amended; See Figs. 1-11.

38. Amended; See Figs. 1-11.

39. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

40. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

41. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example

42. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example, and See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic.

43. Cancelled

44. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example

45. Pending;

46. Pending;

47. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example,

48. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic;

49. Pending;

50. Pending;

51. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example

52. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example

53. Cancelled;

54. Pending

55. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

56. Pending

57. Pending

58. Pending

59. Pending

60. Pending

61. Pending

62. Pending

63. Pending

64. Pending

65. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

66. Amended; See Col. 5:12-33, and Figures, such as Figs. 1 and 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

67. Amended; See Col. 5:12-33, and Figures, such as Fig. 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic

68. Amended; Fig. 1;

69. Pending;

70. Pending;

71. Amended;

72. Amended;

73. Amended; See Figs. 1, 2, 8, 9, 10, 11, and Col: 4:16-29; for example;.

74. Pending;

75. Pending;

76. Pending;

77. Amended; Figs. 1, 2, 5, 6, 8, 9, 10;

78. Pending;

79. Pending;

80. Pending;

81. Pending;

82. Pending;

83. Pending;

84. Pending;

85. Pending;

86. New; Figs. 1-12, and throughout the specification, including Col: 4:16-29;

87. See Col. 5:12-33, and Figures, such as Figs. 1 and 11. In particular, the specification specifies the center spacing and thickness, which define the corresponding hole size via simple arithmetic;

88. Figures 1-11;

89. Figures 1-11;

Remarks:

These remarks are responsive to the Office action dated March 12, 2007. Prior to entry of this response, claims 21-42 and 44-89 were pending in the application. By way of this response, claims 21-33, 37-42, 44, 47-48, 51-52, 55, 65-68, 71-73, and 77 are amended, claims 34-36 and 53 are cancelled, and claims 86-89 are added. Applicant respectfully requests reconsideration of the application and allowance of the pending claims.

Rejections under 35 U.S.C. § 103

Claims 21-42 and 44-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,572,979 (Czadzeck) in view of U.S. Patent Number 4,691,894 (Pyotsia).

With regard to Czadzeck and Pytsia, Applicant respectfully submits that, considering the Graham factors of obviousness and recent guidance from the Supreme Court in KSR, the combination is improper, as discussed in detail below.

In particular, the main teaching of Czadzeck is that certain annular grooves, or recesses, should be used in intake bore of an engine manifold to create turbulence to allegedly reduce resonance noise emanating from its intersection with another incoming flow. It is clear that both flows referred to in Czadzeck are gas flows, either intake air, or EGR, PCV, etc. *See* the abstract of Czadzeck, and Cols. 1:25-32 and 2:9-16 and 2:49-55, for example.

On the other hand, the cited Figures 6-7 of Pytsia aim at reducing noise from cavitation. As is well known, cavitation is a phenomena in *liquids* where voids or bubbles in the flow collapse and force liquid energy to very small volumes. This action in the liquid creates spots of high temperature and causes the emission of shock waves which are the source of noise.

Applicant respectfully submits that a person skilled in the art of induction designs for engines would in fact be discouraged by the teaching of Czadzeck from adding the features of Pytsia.

First, because the engine induction system of Czadzeck deals with gas flows, there can be no issues with cavitation.

Second, one skilled in the art of induction design following Czadzeck would likely avoid the system of Pytsia since it describes increasing pressure distribution symmetry, and reducing flow speed and pressure. *See* Col. 4:43-57. Based on the teaching of Pytsia, one skilled in the art might likely conclude that increasing pressure symmetry, reducing flow speed, etc., would reduce turbulence, and thus counteract the entire purpose of Czadzeck.

Third, the allegation in the office action states that:

> **Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the air diffuser on the intake system of Cradzeck as taught by Pyotsia et al in order to reduce noise in the intake system.**

However, since Czadzeck allegedly solves any issues with noise generation, it is unclear why one skilled in the art would add cost and complexity to the system by further modifying the system.

Thus, Applicant respectfully submits that the rejection of the claims should be withdrawn.

Claims 21-42 and 44-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czadzeck in view of U.S. Patent Number 3,238,955 (Lassiter).

Again, Applicant objects to the combination. As described in Czadzeck, it aims at reduce noise emanating from the interface of the combined flow from opening 22 and from the main bore 26, whereas Lassiter aims at reducing resonance caused by an acoustic aerodynamic resonance cause by use of the valve in an aircraft cabin. There is no evidence in the record that the intake manifold system of Czadzeck has any issues with acoustic aerodynamic resonance, or that such resonance could even be possible in the intake manifold system. Thus, this rejection should also be withdrawn.

Additionally, Applicant submits that even if the references are combined, various features are still missing, as indicated below.

Claim 21: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a throttle assembly coupled upstream of a seal that surrounds the main bore and defines a single sealed region, where a plurality of vanes extend only partially into flow through said sealed region. Rather, as shown by Pytsia, the throttle assembly (1) has no downstream seal because the vanes are integrated into the body 1. The seal 6 appears to be for sealing the throttle plate, as shown in Fig. 2.

Claim 22: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing an air diffuser with a seal positioned downstream of a throttle and throttle body, with the seal interfacing the diffuser and a throttle body.

Claim 23: Applicant can find nothing in any of Czadzeck or Lassiter showing an air diffuser with 11 vanes or less in parallel with one another.

Claims 24, 26: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a space between at least two vanes being about 3.5mm to 4.5mm.

Claim 25: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a diffuser with a main bore coupled downstream of the throttle body via a seal surrounding the main bore.

Claim 27: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing two sets of vanes, each parallel, extending from different portions of the bore wall, and in a common plane.

Claim 28: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing an air diffuser comprising a seal surrounding said main bore and defining a single region, where one of a first and second sets of vanes extends only partially into said region, and one of said first and second sets of vanes includes 11 vanes or less.

Claim 30: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing an air diffuser having at least one two vanes extending across

the main bore connecting to two locations of the bore wall, wherein said air flows through a space between said vanes of about 3.5mm to 4.5mm.

Claim 31: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a diffuser having a grid pattern, wherein at least one hole in said grid is between 3.5 and 4.5mm.

Claim 32: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a means for diffusing and redirecting air flowing through the main bore being coupled between a first bore wall (of the throttle) and a second bore wall (of the intake manifold), the means having a seal.

Claim 33: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a plurality of parallel vanes spaced from one another and in a common plane, the vanes disposed downstream of the valve and extending into the main bore to reduce sound generated within the intake system associated with air flowing past the valve, the vanes coupled between the throttle body and intake manifold via a sealed connection.

Claim 37: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a method comprising redirecting air flowing past the intake throttle using 11 vanes or less extending in a common plane and in a first direction into the airflow downstream of the throttle valve.

Claim 38: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing redirecting air flowing past the intake throttle using about 5 to 11 substantially evenly spaced parallel vanes extending into the airflow downstream of the throttle valve and upstream of the intake manifold.

Claim 39: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing redirecting air flowing past the throttle valve using a diffusing element downstream of the throttle valve and upstream of the intake manifold to reduce noise associated with the air flowing past the throttle valve, said diffusing element having vanes protruding into the intake passage creating at least one space between 3.5mm and 4.5mm wide

Claim 40: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing redirecting air flowing past the throttle valve using a plurality of

diffusing elements arranged in a grid pattern spanning at least a portion of the intake passage downstream of the throttle valve and upstream of the intake manifold to reduce noise associated with the air flowing past the throttle valve, wherein at least one hole in said grid is between 3.5 and 4.5mm.

Claim 41: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing modifying airflow past the throttle valve using a diffusing element, where said diffusing element is surrounded by a seal creating only a single chamber containing said grid, said seal coupling the diffusing element downstream of the throttle body.

Claim 42, and 44-51: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a body defining an air passage and adapted for mounting between the throttle body and the intake manifold; and a plurality of vanes extending from the body.

Claim: 54 Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing wall including an integral air diffuser extending into the main bore.

Claims 56-59, 61-67: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a plastic throttle body.

Claims 60-59: Applicant can find nothing in any of Czadzeck, Pytsia, or Lassiter showing a plastic intake manifold.

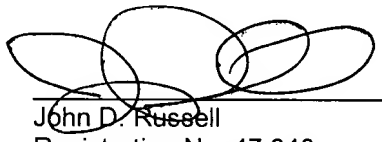
Conclusion

Applicant believes that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, Applicant respectfully requests that the Examiner issue a Notice of Allowability covering the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

Please charge any cost incurred in the filing of this Response, along with any other costs, to Deposit Account No. 503397.

Respectfully submitted,

ALLEMAN HALL MCCOY RUSSELL & TUTTLE LLP



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